

In the Claims

1-46 (Cancelled)

47. (Previously Amended) A method of resampling comprising:
providing data in a first spatial distribution of data points, the first spatial distribution being in a first domain;
providing a second spatial distribution of data points, the second spatial distribution being in the first domain;
resampling, in the first domain, data from said first spatial distribution onto said second spatial distribution, without generating artifacts in the data, which artifacts could be corrected by pixel-by-pixel multiplying an image reconstructed from said resampled data, by a pre-determined post-compensation matrix,
wherein said resampling is performed by multiplying said data by a single matrix being in the same domain as the first and second spatial distributions; and
transforming the resampled data into a second domain after the resampling.

48. (Original) A method according to claim 47, wherein said single matrix is a sparse matrix in which each row comprises at least 20% zero elements.

49. (Original) A method according to claim 48, wherein said single matrix is a sparse matrix in which each row comprises at least 50% zero elements.

50. (Original) A method according to claim 49, wherein said single matrix is a sparse matrix in which each row comprises at least 80% zero elements.

51. (Original) A method according to claim 47, wherein said second spatial distribution comprises a uniform spatial distribution.

52. (Original) A method according to claim 47, wherein said first spatial distribution comprises a non-uniform spatial distribution.

53. (Currently Amended) A method of resampling comprising:

providing data in a first spatial distribution of data points, the first spatial distribution being in a first domain;

providing a second spatial distribution of data points, the second spatial distribution being in the first domain;

~~pre-multiplying said data by a diagonal density pre-compensation matrix which includes at least one element having a negative value, the diagonal density pre-compensation matrix being in the same domain as the first and second spatial distributions;~~

resampling, in the first domain, said data from said first spatial distribution onto said second spatial distribution by multiplying said data by a band-diagonal density pre-compensation matrix which includes at least one element having a negative value; and

transforming the resampled data into a second domain after the resampling.

54. (Currently Amended) A method according to claim 53, wherein said band-diagonal ~~pre-compensation-pre-compensation~~ matrix comprises both positive and negative elements.

55. (Original) A method according to claim 53, comprising reconstructing an image from said resampled data by applying an FT (Fourier Transform) to said data.

56. (Original) A method according to claim 55, comprising pixel-by-pixel multiplying the reconstructed image by a pre-determined post-compensation matrix.